

WHAT IS CLAIMED IS:

1. A finder apparatus which is used together with a photographing apparatus, comprising:
  - a finder configured to present an image of  
5 a subject so as to be visually recognizable by an operator; and
  - positioning marker presentation member configured to present a marker for positioning for setting relative positions of the photographing apparatus and  
10 an object for calibration to the finder so as to be visually recognizable by the operator, when the object for calibration including at least one of a known shape and a known surface attribute is photographed to acquire a parameter of a photographing optical system  
15 of the photographing apparatus.
2. The finder apparatus according to claim 1, wherein the photographing apparatus is a stereo photographing apparatus which photographs the subject from a plurality of points of sight.
- 20 3. The finder apparatus according to claim 1, wherein the finder includes an optical finder including a finder optical system configured to form an optical path to guide the image of the subject into operator's eyes.
- 25 4. The finder apparatus according to claim 1, wherein the positioning marker presentation member includes:

marker image production section configured to produce the image of the marker for positioning; and

image superimposition section configured to superimpose the image of the marker for positioning produced by the marker image production section upon the subject image presented in the finder.

5. The finder apparatus according to claim 1, wherein the photographing apparatus includes an image pickup device configured to convert the subject image formed by the photographing optical system into image data to output the image data, and

the finder includes an electronic finder configured to display an image obtained by reproduction of the image data output from the image pickup device.

6. The finder apparatus according to claim 5, wherein the positioning marker presentation member superimposes and displays the image of the marker for positioning upon an image corresponding to the subject image displayed in the electronic finder.

7. The finder apparatus according to claim 6, wherein the photographing apparatus further includes storage section configured to store the image data output from the image pickup device as photographed image data, and

the positioning marker presentation member does not present the marker for positioning, when the image obtained by the reproduction of the photographed image

data stored in the storage section is displayed in the electronic finder.

8. The finder apparatus according to claim 6, wherein the photographing apparatus further includes  
5 control section configured to calculate a difference between a position of the image of the object for calibration displayed in the electronic finder and that of the marker for positioning, and

the positioning marker presentation member  
10 displays description concerning photography in the electronic finder based on a calculation result in the control section.

9. The finder apparatus according to claim 8, wherein the photographing apparatus further includes  
15 input section configured to operate the photographing apparatus, and

the positioning marker presentation member  
switches display and non-display of the description concerning the photography based on information input  
20 via the input section.

10. The finder apparatus according to claim 1, wherein the positioning marker presentation member includes one of a member which is analogous to the marker for positioning and a member including the  
25 marker for positioning, and

the one of the member which is analogous to the marker for positioning and the member including the

marker for positioning is disposed on an optical path of a light which guides the image of the subject into the operator's eyes to present the marker for positioning.

5           11. The finder apparatus according to claim 1, wherein the photographing apparatus further includes input section configured to operate the photographing apparatus, and

              the positioning marker presentation member  
10 switches presentation and non-presentation of the marker for positioning based on the information input via the input section.

              12. The finder apparatus according to claim 1, wherein the positioning marker presentation member  
15 allows the marker for positioning to blink.

              13. The finder apparatus according to claim 1, wherein the positioning marker presentation member does not present the marker for positioning during usual photographing.

20           14. The finder apparatus according to claim 1, wherein the positioning marker presentation member does not present the marker for positioning during photography for a purpose of obtaining three-dimensional information of the subject.

25           15. The finder apparatus according to claim 14, wherein the photography for the purpose of obtaining the three-dimensional information of the subject

includes photography in which a pattern is projected onto the subject.

16. The finder apparatus according to claim 1, wherein for the marker for positioning, at least one of  
5 line segments, intersecting line segments, points, curves, intersecting curves and closed curves are disposed, and accordingly the marker for positioning indicates a closed region corresponding to a contour of the image of the object for calibration presented in  
10 the finder in a state in which the relative positions of the photographing apparatus and the object for calibration are appropriately set.

17. The finder apparatus according to claim 16, wherein the marker for positioning indicates at least  
15 a corner position of the closed region.

18. The finder apparatus according to claim 16, wherein the marker for positioning surrounds an outer edge of the closed region.

19. The finder apparatus according to claim 1, wherein for the marker for positioning, at least one of  
20 line segments, intersecting line segments, points, curves, intersecting curves and closed curves are disposed, and accordingly the marker for positioning indicates a characteristic point of the image of object  
25 for calibration presented in the finder in a state in which the relative positions of the photographing apparatus and the object for calibration are

appropriately set.

20. The finder apparatus according to claim 19, wherein the characteristic point includes a central point of a pattern of the object for calibration.

5        21. The finder apparatus according to claim 19, wherein the characteristic point includes a joint between the surfaces of the object for calibration.

( ,        22. The finder apparatus according to claim 19, wherein the characteristic point includes  
10        an arrangement of characteristic surface attribute of the object for calibration.

23. A marker presentation member comprising one of:

      a member through which a visible light is  
15        transmitted and on which a marker for positioning is partially disposed to set relative positions of a photographing apparatus and an object for calibration including one of a known shape and surface attribute;  
(        and

20        a member including the marker for positioning, wherein

      the one of the member on which the marker for positioning is disposed and the member including the marker for positioning is disposed on an optical  
25        path of a light which guides the image of the object for calibration into the operator's eyes, when photographing the object for calibration in order to

acquire parameters of a photographing optical system of the photographing apparatus.

24. A method for presenting a marker for positioning for calibration photography, comprising:

5       presenting an image of an object for calibration in a finder which guides the image photographed by a photographing apparatus into operator's eyes so as to be visually recognizable by an operator, when photographing the object for calibration whose one of  
10       shape and surface attribute is known in order to acquire parameters of a photographing optical system of the photographing apparatus; and

          presenting a marker for positioning to set relative positions of the photographing apparatus and  
15       the object for calibration in the finder so as to be visually recognizable by the operator.

25. A finder apparatus which is used together with a photographing apparatus, comprising:

          a finder for presenting an image of a subject so  
20       as to be visually recognizable by an operator; and

          positioning marker presentation means for presenting a marker for positioning for setting relative positions of the photographing apparatus and an object for calibration to the finder so as to be  
25       visually recognizable by the operator, when the object for calibration including at least one of a known shape and a known surface attribute is photographed to

acquire a parameter of a photographing optical system  
of the photographing apparatus.